DOCUMENT RESUME

ED 128 204 SE 021 286

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TITLE An Annotated Bibliography of Research on Self-Paced Mathematics Instruction (1965-1976).
PUB DATE [76]
NOTE 55p.; Not available in hard copy due to marginal legibility (light and broken type) throughout original document

EDRS PRICE MF-$0.83 Plus Postage. HC Not Available from EDRS.
DESCRIPTORS *Annotated Bibliographies; Bibliographies; College Mathematics; Elementary School Mathematics; Elementary Secondary Education; *Individualized Instruction; *Instruction; *Mathematics Education; *Research Reviews (Publications); Secondary School Mathematics
IDENTIFIERS *Self Paced Instruction

ABSTRACT

This bibliography provides information and brief annotations for 148 papers reporting research into the effectiveness of self-paced instruction in mathematics. The citations are organized into three major categories: research summaries (8 papers), studies comparing the effectiveness of self-paced programs with that of more traditional programs (101 papers), and studies designed to analyze or evaluate specific components of self-paced programs (39 papers). The papers annotated deal with mathematics instruction at all levels from the primary grades through college, and with a variety of cognitive and affective criteria for judging the effectiveness of instruction. Each annotation notes the grade levels at which the study was performed and summarizes the major findings. (SD)

An Annotated Bibliography of Research on Self-Paced Mathematics Instruction (1965 - 1976)

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Running head: Bibliography of Research on Self-Paced Math

Abstract

This bibliography contains brief descriptions of studies done in the past 10 or 12 years in which the effectiveness of self-paced mathematics instruction was investigated. Included among the sources are summaries of this type of research, studies in which self-paced programs were compared to other instructional approaches, and studies in which the nature and role of various components of a self-paced instructional system were investigated. The self-paced programs examined in the studies include Individually Prescribed Instruction (IPI), Program for Learning in Accordance with Needs (PLAN), Individually Guided Education (IGE), Individualized Mathematics System (IMS) and many locally-developed programs which were based on a similar, self-paced instructional approach.

An Annotated Bibliography of Research on Self-Paced Mathematics Instruction (1968-1978)

During the past decade, an increased emphasis has been placed on individualizing the instruction of America's school children. Many educational agencies have published materials to be used in self-paced or individualized instructional programs. They include Individually Prescribed Instruction (IPI), Program for Learning in Accordance with Needs (PLAN), and Individually Guided Education (IGE) among others. Teachers in local schools throughout the country have also been involved in writing packets for self-paced instruction. The aim of all these materials is to allow the student to proceed through the content presented at the pace best for him.

As with any educational innovation, many questions have been raised about various aspects of individualized instruction. As a result, much research has been done in the field, and publications of the past ten years abound with position papers which attempt to answer these questions. The bibliography which follows contains a fairly complete listing of the research studies which provide information about self-paced instruction in mathematics.

The entries were gathered from three main sources. First, the excellent annotated bibliographies by Suydam and Weaver found in the November issues of the Journal for Research in Mathematics Education from 1971 through 1975 were searched for entries related to self-paced instruction. Because it was felt that the annotations for these entries could not be improved upon, they appear in this bibliography also. Second, Dissertation Abstracts of the past

ten years were searched. In all, over 100 doctoral dissertations pertaining to self-paced instruction were located. Third, a computer search of the ERIC system files for the past ten years yielded many additional sources.

The entries have been divided into three broad categories. The first category contains those articles which summarize research related to self-paced mathematics instruction. In the second category are the studies which compared students taught under a self-paced approach with students taught in a more traditional program in which all students in a class do the same work at the same time. Cognitive as well as affective variables were used for comparison. In the last category are studies in which specific components of self-paced instructional programs were analyzed and evaluated.

Research Summaries

Acquaviva, V. M. Provisions for individual differences in mathematics instruction in the public high schools of New Jersey (Doctoral dissertation, Rutgers University The State University of New Jersey, 1973). Dissertation Abstracts International, 1974, 34, 4074A. (University Microfilm No. 73-32, 247)

Ability grouping was used by eighty percent of the schools in New Jersey; about twenty percent reported individualized instruction programs. (grades 9 - 12)

Edling, J. V. Individualized instruction: the way it is in 1970. Audio-Visual Instruction, 1970, 15(2), 13-16.

The article describes many forms of individualized instruction throughout the United States and concludes with a list of features the programs seem to have in common. (all levels)

Golladay, M. A., DeVault, M. V., Fox, Jr., G. T., & Skuldt, K. Problems in empirical research on individualized programs. Journal for Research in Mathematics Education, 1975, 6, 159-169.

A conceptual framework having implications for future research on individualized mathematics instruction is given. (all levels)

Karmos, J. S. A study of four factors associated with the installation of the Individually Prescribed Instruction in mathematics program in ten

Illinois schools (Doctoral dissertation, Southern Illinois University, 1974). Dissertation Abstracts International, 1975, 35, 7613A. (University Microfilm No 75-13, 274)

The main strengths cited were in student attitudes and in the individualized aspect while main weaknesses were in student arithmetic skills and in the lack of manipulative and audiovisual aids. (elementary)

Kozak, M. A. A critical analysis of individualized instruction since 1944 (Doctoral dissertation, Texas A & M University, 1974). Dissertation Abstracts International, 1975, 35, 5218A. (University Microfilm No. 75-2912)

The trend toward individualization is shown by a comparison of the numbers of articles devoted to that topic for the years 1930-1971; 36 individualized programs are described along with data on the costs of individualization; a taxonomy of terminology is also included. (all levels)

Schoen, H. L. Self-paced mathematics instruction: how effective has it been in the secondary and post secondary schools? The Mathematics Teacher (in press), 1976.

Results of studies from the past ten years which compared self-paced instruction with other instructional approaches in the secondary and post secondary schools are summarized. (grades 9 - 16)

Schoen, H. L. Self-paced mathematics instruction: how effective has it been?

The Arithmetic Teacher, 1976, 23, 90-96.

Recent research dealing with the overall effectiveness of self-paced instruction as well as various program components with elementary school students is reviewed. (grades K - 8)

Suydam, M. N., & Weaver, J. F. Individualizing instruction, set A, using research: a key to elementary school mathematics. University Park, Penn.: Pennsylvania State University Center for Cooperative Research with Schools, 1970. (ERIC Document Reproduction Service No. ED 038 318)

A review of some research on individualized instruction prior to 1970 is given. (all levels)

Comparative Studies

Abate, C. E. An evaluation of an individualized educational system in an elementary school (Doctoral dissertation, Columbia University, 1972). Dissertation Abstracts International, 1973, 33, 4234A. (University Microfilm No. 73-2575)

In grades 1 - 3, but not in grade 4, pupils using the PLAN system achieved as well on a mathematics test as did students in a non-PLAN school. (grades 1 - 4)

Amendola, A. A. Changes in attitude and achievement effected by a continuous

progress education program at the elementary school level (Doctoral dissertation, Arizona State University, 1973). Dissertation Abstracts International, 1973, 33, 4702A. (University Microfilm No. 73-5304)

The continuous progress program was as effective as a trational program for increasing arithmetic-concepts knowledge but not computational skills. (grades 1, 3 - 8)

Arrants, G. C. An individually prescribed instructional program using behavioral objectives with primary educable mentally retarded children (Doctoral dissertation, Duke University, 1972). Dissertation Abstracts International, 1973, 33, 4973A. (University Microfilm No. 73-6546)

Mean gain scores on an arithmetic test were significantly higher for EMR pupils when they used the developed IPI program. (Primary EMR)

Ball, L. V. Student contracting for achievement grades in ninth grade general mathematics (Doctoral dissertation The University of Connecticut, 1973). Dissertation Abstracts International, 1973, 34, 206A. (University Microfilm No. 73-16, 709)

No significant differences were found in attitudes or mathematical skills between groups of ninth-grade general mathematics students who contracted for their achievement grades and those who did not. (grade 9)

Bartel, E. V. A study of the feasibility of an individualized instructional

program in elementary school mathematics (Doctoral dissertation, The University of Wisconsin, 1965). Dissertation Abstracts, 1966, 26, 5284. (University Microfilm No. 65-14, 846)

Mean concept test scores, but not achievement scores, were significantly higher for fourth graders in an individualized math program than for those in a more traditional one. (grade 4)

Bazik, A. M. Evaluation of a plan for individualizing instruction through informing the students of behavioral objectives in mathematics course for prospective elementary school teachers at Elmhurst College (Doctoral dissertation, Northwestern University, 1972). Dissertation Abstracts International, 1973, 33, 5594A. (University Microfilm No. 73-10, 181)

No significant differences were found between students who used self-paced materials with explicit objectives and a smaller group having traditional instruction. (elementary preservice)

Beul, B. T. An evaluative study of teaching seventh-grade mathematics incorporating team teaching, individualized insturction and team supervision utilizing the strategy of learning for mastery (Doctoral dissertation, Saint Louis University, 1973). Dissertation Abstracts International, 1974, 34, 4685A. (University Microfilm No. 74-4479)

A significant difference in achievement favored the group having the individualized program over the traditionally-taught group. (grade 7)

Bierden, J. E. Behavioral objectives and flexible grouping in seventh grade mathematics. Journal for Research in Mathematics Education, 1970, 1, 207-217.

Seventh-grade students when grouped into very flexible groups each using materials at an appropriate level showed significant improvement in attitudes over both experimental and control groups of previous studies but showed no significant difference in achievement. (grade 7)

Blayton, E. J., & Ryals, J. The effects of a highly concentrated reading and mathematics program on the achievement of inner-school primary pupils: Nathan S. Forrest Elementary School, 1972-1973; research and development report, vol. 7, no. 28, 1973. Atlanta: Atlanta Public Schools, 1973. (ERIC Document Reproduction Service No. ED 094 048)

The mathematics program tended to be more successful than the reading program. A cost analysis showed per pupil expenditure does not necessarily determine performance. (elementary)

Bradford, E. F. A comparison of two methods of teaching in the elementary school as related to achievement in reading, mathematics, and self-concept of children (Doctoral dissertation, Michigan State University, 1972). Dissertation Abstracts International, 1973, 33, 4786A. (University Microfilm No. 73-5334)

Gains in mathematics scores were significantly greater in the schools using

the Individually Guided Instruction Program. (elementary)

Bronder, C. C. The application of diagnostic teaching and mathematic [sic] laboratory to a middle school individualized unit on fractions (Doctoral dissertation, University of Pittsburgh, 1973). Dissertation Abstracts International, 1973, 34, 1579A. (University Microfilm No. 73-24, 091)

Eighty percent mastery was not achieved at the end of the unit. (intermediate)

Broussard, V. The effect of an individualized instructional approach on the academic achievement in mathematics of inner-city children (Doctoral dissertation, Michigan State University, 1971). Dissertation Abstracts International, 1971, 32, 2999A. (University Microfilm No. 71-31, 166)

Students given individually prescribed work through independent study, small-group discussions, large-group activities, and teacher-led discussions, achieved significantly higher in skills and concepts than those taught by a traditional, textbook, class-group method. (grade 4)

Brust, J. V. The relationship of individualized instruction in learning skills to self-esteem and achievement (Doctoral dissertation, Columbia University, 1972). Dissertation Abstracts International, 1972, 33, 97A. (University Microfilm No. 72-19, 510)

Classes not using Project PLAN scored significantly higher in computation,

while there were no differences between PLAN and non-PLAN classes in concepts and applications. (grade 5)

Bull, S.S. A comparison of the achievement of geometry students taught by individualized instruction and traditional instruction (Doctoral dissertation, Arizona State University, 1971). Dissertation Abstracts International, 1971, 31, 4616A. (University Microfilm No. 71-5976)

The mean score of classes taught by the individualized method was significantly higher than that of classes taught by the traditional method. Classes taught in the seventh period scored significantly higher than those taught in the first period, but there was no interaction effect between method and time of day. (grade 10)

Burchyett, J. A. A comparison of the effects of nongraded, multi-age, team teaching vs. the modified self-contained classroom at the elementary school level (Doctoral dissertation, Michigan State University, 1972). Dissertation Abstracts International, 1973, 33, 5998A. (University Microfilm No. 73-12, 686)

Pupils in self-contained classrooms achieved significantly better in mathematics in grade 4; no achievement differences were found in grade 3 or 5. (grades 3 - 5)

Chatterley, L. J. A comparison of selected modes of individualized instruction in mathematics for effectiveness and efficiency (Doctoral dissertation,

The University of Texas at Austin, 1972). Dissertation Abstracts International, 1973, 33, 4663A. (University Microfilm No. 73-7532)

Use of multimedia materials with correct-answer feedback was found to be more effective than either alone, especially with medium and low achievers, for a unit on integers using IPI materials. (grade 7)

Clough, R. A. An analysis of student achievement in mathematics when individually prescribed instruction (IPI) is compared to the current instructional program. (Doctoral dissertation, The University of Nebraska, 1971). Dissertation Abstracts International, 1971, 32, 2849B. (University Microfilm No. 71-28, 604)

Students using IPI appeared to make greater mean gains than those using a traditional program. (grades 1 - 3)

Colvin, D. Evaluation of CPMP (grades 6-12 continuous progress mathematics program) 1972-1973. Aurora, Colo.: Adams-Arapahoe School District 28-J, 1973. (ERIC Document Reproduction Service No. ED 085 400)

Continuous Progress Mathematics Program (CPMP) produced a favorable attitude change and growth in achievement of 1.9 years as compared to 1.3 years in the control schools. (grades 6 - 12)

Cook, D. M., Wardrop, J. L., Tagutz, G. E., & Quilling, M. Research and development activities in R&I units of two elementary schools of Janesville,

Wisconsin, 1966-1967. Madison: Wisconsin R&D Center of Cognitive Learning, 1968. (ERIC Document Reproduction Service No. ED 023 175)

Of the four treatments compared, T.V. by itself was the least effective and teacher demonstration followed by the students' manipulation of objects was rated as the best overall. (grade 1)

Corbin, H. G. An individualized approach: an evaluation of cognitive and affective learning in seventh and eighth grade mathematics classes (Doctoral dissertation, University of Southern California, 1974). Dissertation Abstracts International, 1974, 34, 6939A. (University Microfilm No. 74-11, 684)

No significant differences in achievement or attitude were found between groups taught by individualized or traditional approaches. (grades 7, 8)

Corn, J. & Behr, A. A. A comparison of three methods of teaching remedial mathematics as measured by results in a follow-up course. The MATYC Journal, 1975, 9, 9-13.

Freshmen in conventional remedial mathematics classes did slightly better on several measures than those in both a modularized approach and a programmed instruction approach. (undergraduate)

Crandall, L. D. The effects of peer tutors and individual skill kits on arithmetic achievement and attitude in grade seven (Doctoral dissertation,

The University of Michigan, 1973). Dissertation Abstracts International, 1974, 35, 94A-95A. (University Microfilm No. 74-15, 650)

For computation, little difference was found between groups using skill kits or in-class tutoring; no differences were found for applications or attitude. For concepts, highly significant results favored the tutoring group. (grade 7)

Crangle, E. A. An evaluative study of the Northwest Junior High School individualized mathematics program (Doctoral dissertation, University of Utah, 1971). Dissertation Abstracts International, 1971, 32, 1774A. (University Microfilm No. 71-25, 007)

Students taught by traditional instruction achieved significantly more than those taught by individualized instruction. (grade 8)

Cross, M. E. An evaluation of the individualized instructional program of the Natomas Union School Districts (Doctoral dissertation, Brigham Young University, 1974). Dissertation Abstracts International, 1974, 35, 715A. (University Microfilm No. 74-18, 250)

Individualized instruction did not improve or adversely affect student achievement or intelligence over the baseline data of 1969. (grades 1 - 8)

Deep, D. The effect of an individually prescribed instruction program in arithmetic on pupils at different ability levels (Doctoral dissertation,

University of Pittsburgh, 1966). Dissertation Abstracts, 1967, 27, 2310A-2311A. (University Microfilm No. 66-13, 483)

Although IPI higher ability students tended to do more work than lower ability students, IPI did not operate differentially on high, average, and low ability groups, but the conventional program did. (grades 4, 5, 6)

Earnshaw, G. L. Open education as a humanistic intervention strategy (Doctoral dissertation, Syracuse University, 1972). Dissertation Abstracts International, 1973, 34, 1175A. (University Microfilm No. 73-19, 801)

Pupils in the open education program did not score as well as pupils in a regular program on standardized tests of mathematics and reading. (grade 2)

Emery, H. E. Mathematics for prospective elementary teachers in a community college: a comparison of audio-tutorial and conventional teaching materials and modes (Doctoral dissertation, Michigan State University, 1970). Dissertation Abstracts International, 1971, 31, 5930A. (University Microfilm No. 71-11, 828)

The group using audio-tutorial materials achieved more than the conventionally-taught group. A significant correlation between attitude and achievement was found only for the conventionally-taught group. (elementary preservice)

Englert, T. J. A comparative study of the effects on achievement and changes

in attitude of senior high school students enrolled in first year algebra under two different teaching approaches (Doctoral dissertation, Cornell University, 1972). Dissertation Abstracts International, 1972, 33, 1076A-1077A. (University Microfilm No. 72-23, 657)

No significant differences in achievement or attitude were found between classes taught by an individualized approach and a group oriented approach. (grade 9)

Ewing, P. M. A study of the effects of individualizing the pacing and instruction of elementary algebra at the college level (Doctoral dissertation, The Ohio State University, 1973). Dissertation Abstracts International, 1974, 35, 212A. (University Microfilm No. 74-14, 509)

The individual pacing method did not produce higher achievement, but it did greatly reduce the drop-out and attrition rates. (undergraduate)

Faist, C. R. Achievement, attitudes, and resource usage in a mathematics program in high school; traditional versus flexible (Doctoral dissertation, Northwestern University, 1972). Dissertation Abstracts International, 1972, 33, 2813A. (University Microfilm No. 72-32, 428)

When traditional scheduling was compared with flexible scheduling, findings on attitude and achievement measures were mixed. (grades 9, 11)

Fernandez, P. P. A presentation and evaluation of an individualized

instruction course in first year algebra (Doctoral dissertation, University of Utah, 1972). Dissertation Abstracts International, 1972, 33, 1187B. (University Microfilm No. 72-24, 572)

First year algebra students using researcher-prepared materials for individualized instruction showed satisfactory achievement and a more positive attitude toward mathematics than students at a neighboring school. (secondary)

Ferney, G. A. An evaluation of a program for learning in accordance with needs (Doctoral dissertation, Washington State University, 1976). Dissertation Abstracts International, 1970, 30, 4327A. (University Microfilm No. 70-5657)

The group not using PLAN achieved significantly higher on arithmetic reasoning than the group using PLAN. ~~First~~ Girls using PLAN achieved higher scores than did boys, and thus PLAN may be more related to the learning styles of girls. (grade 5)

Fielder, R. E. The comparative effect of two years of individually prescribed instruction on student achievement in mathematics (Doctoral dissertation, East Texas State University, 1971). Dissertation Abstracts International, 1972, 32, 5103A. (University Microfilm No. 72-10, 831)

The non-IPI group generally achieved better than the IPI group. (grades 3-6)

Fisher, J. R. An investigation of three approaches to the teaching of mathematics in the elementary school (Doctoral dissertation, University of Pittsburgh, 1967). Dissertation Abstracts, 1968, 28, 4947A. (University Microfilm No. 68-7841)

No significant differences in mathematics achievement were found among groups taught by IPI, programmed instruction and traditional instruction. (grades 3 5)

Fisher, M. E. A comparative study of achievement in the concepts of fundamentals of geometry taught by computer managed individualized behavioral objective instructional units versus lecture-demonstration methods of instruction (Doctoral dissertation, The George Washington University, 1973). Dissertation Abstracts International, 1973, 34, 2161A. (University Microfilm No. 73-25, 330)

No significant differences in achievement were found between students using the computer managed units or having the traditional geometry program. (grade 11)

Fisher, Jr., V. L. The relative merits of selected aspects of individualized instruction in an elementary school mathematics program (Doctoral dissertation, Indiana University, 1966). Dissertation Abstracts, 1967, 27, 3366A. (University Microfilm No. 67-4009)

Neither progressing independently nor evaluating their own work seemed to

contribute significantly to students' achievement in mathematics. (grade 6)

Flournoy, L. P. Individualized instruction in mathematics for first grade children (Doctoral dissertation, University of California, Los Angeles, 1973). Dissertation Abstracts International, 1974, 34, 5582A. (University Microfilm No. 74-3970)

An individualized program resulted in significantly higher achievement than a non-individualized program. (grade 1)

Frase, L. E. A comparison of two individualized mathematics programs on student independence, achievement, time, and attitude criterion measures (Doctoral dissertation, Arizona State University, 1971). Dissertation Abstracts International, 1971, 32, 1978A. (University Microfilm No. 71-26, 592)

Students using guided discovery units completed their objectives more quickly and with greater independence than those using individualized booklets, but achievement and attitude were not significantly different. (intermediate)

Fremont, H. I. Individualized instruction in plane geometry: a comparison of the relative effectiveness of learning plane geometry by an individualized approach as contrasted with the traditional approach of group instruction (Doctoral dissertation, New York University, 1963). Dissertation Abstracts, 1964, 24, 3227. (University Microfilm No. 64-245)

No significant differences were found in achievement, attitude toward mathematics, or social acceptance between students taught by a conventional approach compared to an individualized approach. (secondary)

Gaskill, E. A. An evaluation of individually prescribed instruction in the primary grades of the Urbana schools (Doctoral dissertation, Illinois State University, 1970). Dissertation Abstracts International, 1971, 31, 4416A. (University Microfilm No. 71-6003)

There was little difference in mathematics achievement between IPI and non-IPI groups. (grades 1 - 3)

Gibish, P. A. A description and evaluation of the second year implementation of a systems approach to improving mathematics instruction (Doctoral dissertation, University of Pittsburgh, 1970). Dissertation Abstracts International, 1971, 31, 4619A-4620A. (University Microfilm No. 71-7995)

The SAM films were found to have instructional value, but SAM pupils did not achieve higher than non-SAM pupils. (grade 4)

Godde, J. A. A comparison of young children in achievement of general skills, adjustment, and attitudes in an individual progression curriculum organization with young children in a traditional curriculum organization (Doctoral dissertation, Northern Illinois University, 1972). Dissertation Abstracts International, 1973, 34, 2164A. (University Microfilm No. 73-27, 589)

No significant differences in mathematics achievement were found, but attitudes and adjustment scores were higher for pupils in the individualized program. (kindergarten, grade 1)

Grant, J. F. A longitudinal program of individualized instruction in grades 4, 5, and 6 (Doctoral dissertation, University of California, Berkeley, 1964). Dissertation Abstracts, 1964, 25, 2882 - 2883. (University Microfilm No. 64-12, 522.

The differences found suggested a trend in achievement favoring pupils in the individualized program. (grades 4, 5, 6)

Hanneman, J. H. An experimental comparison of independent study and conventional group instruction in tenth grade geometry (Doctoral dissertation, The University of Florida, 1971). Dissertation Abstracts International, 1972, 32, 6289A. (University Microfilm No. 72-15, 689)

No significant difference in achievement was found between groups using activity packages or conventional instruction. (grade 10)

Harper, K. J. A comparison of three elementary mathematics programs: a model for curriculum evaluation (Doctoral dissertation, Wayne State University, 1972). Dissertation Abstracts International, 1973, 33, 6059A. (University Microfilm No. 73-12, 526)

The IPI program appeared superior to the teacher-developed and textbook

programs. (grades 4, 5)

Head, J. C. A study of the effectiveness of an individualized instruction-contract grading program in a college algebra class (Doctoral dissertation, George Peabody College for Teachers, 1974). Dissertation Abstracts International, 1975, 35, 7742A. (University Microfilm No. 75-12, 445)

Students in the individualized instruction-contract grading program achieved as well as the students in the traditional program. (undergraduate)

Helms, Jr., D. C. Use of a formative evaluation technique in determining the differential-achievement effects of the IPI mathematics, 1967-1970 (Doctoral dissertation, Temple University, 1973). Dissertation Abstracts International, 1974, 34, 4698A-4699A. (University Microfilm No. 74-1796)

The overall achievement of third graders appeared to be adversely affected by the IPI program, whereas sixth graders appeared to benefit from IPI. (grades 3, 6)

Hirsh, Jr., C. R. An experimental study comparing the effects of guided discovery and invididualized instruction on initial learning, transfer, and retention of mathematical concepts and generalizations (Doctoral dissertation, The University of Iowa, 1972). Dissertation Abstracts International, 1973, 33, 3194B. (University Microfilm No. 73-640)

The guided discovery group had significantly higher achievement and transfer

than either of the two individualized instruction groups. (grade 11)

Isenberg, R. L. A comparison of achievement scores in reading, arithmetic, and motor skill development among three instructional programs with different levels of supportive services for elementary school compensatory education students (Doctoral dissertation, Brigham Young University, 1972). Dissertation Abstracts International, 1972, 33, 2765A. (University Microfilm No. 72-32, 649)

In an ESEA Title I Compensatory Education Program, mathematics skills improved more than reading skills in an individualized approach. (grades 1 - 5)

Jackson, G. G. Continuous progress in a primary unit (Doctoral dissertation, East Texas State University, 1965). Dissertation Abstracts, 1967, 28, 2138A. (University Microfilm No. 66-244)

The mean gain of the experimental group over the control group was significant on the complete test battery which included reading, arithmetic, and spelling. (grades 1 - 3)

Johnson, L. Minneapolis I.P.I. mathematics project 1971-72; third year evaluation. A Title I. ESEA project. Minneapolis: Minnesota Department of Research and Evaluation, 1972. (ERIC Document Reproduction Service No. ED 083 290)

In 1972, achievement test percentile ranks for grades 3 and 4 were higher than those for grades 5 and 6 but showed a decline over the previous year. (grades 3, 4)

Joyner, R. N. The effect on an NSF-CCSS project on junior high school student mathematical achievement and attitude toward mathematics (Doctoral dissertation, The Florida State University, 1973). Dissertation Abstract International, 1974, 34, 5780A. (University Microfilm No. 74-6596)

The majority of students made substantial gains in computation in the project year, but the overall scores were not higher than comparable students made the preceding year. (grades 7, 8)

Klosterman, D. G. A comparison of self-instructional techniques and a guided-learning approach in instructing learning-disabled children in a one-to-one tutorial situation (Doctoral dissertation, University of Cincinnati, 1972). Dissertation Abstracts International, 1974, 34, 4021B. (University Microfilm No. 73-29, 457)

No significant differences were found between pupils using self-instruction (following a model), guided learning, or a regular approach. (grade 2)

Kontogianes, J. T. The effects on achievement, retention, and attitude of an individualized instructional program in mathematics for prospective elementary school teachers (Doctoral dissertation, The University of Oklahoma,

1973). Dissertation Abstracts International, 1974, 34, 5802A. (University Microfilm No. 74-6960)

Students using the individualized program achieved and retained significantly higher scores than those having the regular program. (elementary preservice)

Larsson, I. Individualized mathematics teaching results from the IMU project in Sweden. Studia Psychologica et Pedagogica Sersies Altera, 21, 1973. (ERIC Document Reproduction Service No. ED 082 997)

The individual method favored the high achievement pupils and disfavored the low achievers who were thought to become more dependent on the teacher. (grades 7, 8, 9)

Lober, I. M. Individually guided education-resource model (Doctoral dissertation, Virginia Polytechnic Institute and State University, 1974). Dissertation Abstracts International, 1974, 35, 2589A-2590A. (University Microfilm No. 74-23, 815)

Students with learning problems who were in an IGE school achieved as well in mathematics as the average norm-group students. (grades K - 4)

Ludeman, C. Final evaluation report, project video-tape packages mathematics. Arnold, Neb.: Arnold Public Schools, 1973. (ERIC Document Reproduction Service No. ED 086 545)

Students in the experimental algebra class did as well as the students in the control group although the experimental group had had fewer weeks of instruction than the control. Differences for the basic mathematics classes were not significant. (grade 9)

Malcolm, P. J. Analysis of attitude, achievement, and student profiles as a result of individualized instruction in mathematics (Doctoral dissertation, The University of Nebraska, 1972). Dissertation Abstracts International, 1973, 33, 3261A. (University Microfilm No. 73-121)

Significant differences in achievement and attitude favoring students using a teacher-developed program over a traditional program were found in grades 7 and 9 but not grade 8. (grades 7 - 9)

Matthews, F. F. An investigation of the feasibility of the use of student's perceived needs to control the rate of instruction. Paper presented at the AERA annual meeting, 1974. (ERIC Document Reproduction Service No. ED 091 227)

Experimental students did as well or better on achievement than students in the regular Curriculum Revision and Instruction in Mathematics at the Elementary Level (CRIMEL) project classes, and they made more use of the equipment. (undergraduate)

Mayfield, I. R. A comparative study: two methods of teaching mathematics--conventional and individualized (Doctoral dissertation, Mississippi State

University, 1973). Dissertation Abstracts International, 1974, 34, 3922B-3923B. (University Microfilm No. 74-2926)

No significant difference in achievement was found for groups taught by an individualized or a conventional program, but the individualized group was significantly higher on some self-concept scales. (grade 4)

Meade, W. F., & Griffin, L. M. A comparative study of student achievement and other selected student characteristics in a program of individualized instruction and in a program of traditional instruction in mathematics in grades 1-6. Horseheads, N.Y.: Horseheads Central School Dist. #1, 1969. (ERIC Document Reproduction Service No. ED 037 362)

There were no differences in achievement as measured by standardized tests between IPI and non-IPI pupils. However, IPI pupils liked school and mathematics better than non-IPI pupils. (grades 1 - 6)

Moody, W. B. The effect of class size on the learning of mathematics: a parametric study. Paper presented at the meeting of the AERA, 1972. (ERIC Document Reproduction Service No. ED 062 138)

Results of a teacher-made test given to students who had been taught in groups of size 1, 2, 5, and 23 favored group sizes 1, 2, and 5 over size 23, and size 1 over sizes 2 and 5. (grade 4)

Morman, S. J. An audio-tutorial method of instruction vs. the traditional

lecture-discussion method. The Two-Year College Mathematics Journal, 1973, 4(3), 57-61.

No significant differences were found in pretest scores, posttest scores or attrition rates when classes taught remedial college algebra by the audio-tutorial method were compared to classes taught by the traditional lecture-discussion method. (undergraduate)

Morris, J. C. A descriptive analysis and evaluation of an integrated program of individualized instruction in Cedar City High School (Doctoral dissertation, Brigham Young University, 1968). Dissertation Abstracts, 1969, 29, 2937A. (University Microfilm No. 69-3522)

Very few differences were found in attitude toward education or in educational progress when a conventional program was compred to an individualized program over a five-year period. (secondary)

Nanney, D. L. The effects of individualization and traditional mathematics instruction programs on achievement and self-concept scores (Doctoral dissertation, University of Miami, 1973). Dissertation Abstracts International, 1974, 35, 174A. (University Microfilm No. 74-14, 332)

Low-achieving and average-achieving students did significantly better under Individualized Mathematics System (IMS) than corresponding groups did under traditional instruction, but the high achievers did significantly better under the traditional; no significant differences were found in self-concept

between the two treatment groups. (grade 7)

Nix, G. C. An experimental study of individualized instruction in general mathematics (Doctoral dissertation, Auburn University, 1969). Dissertation Abstracts International, 1970, 30, 3367A. (University Microfilm No. 70-1933)

Students with low IQ, those with average mathematics ability, and boys achieved significantly more under individualized instruction than under group-oriented instruction. (grade 8)

O'Neill, J. A. An analysis on selected variables of the effect of a systems approach to teaching specific mathematical skills to fifth grade students from a disadvantaged area (Doctoral dissertation, The University of Connecticut, 1970). Dissertation Abstracts International, 1971, 31, 6236A. University Microfilm No. 71-16, 020)

The teacher-text approach was found to be more effective than a machine-presented approach to materials on fractions. (grade 5)

Palow, W. P. Modularization--a road to relevance? Paper presented at the meeting of the Florida Junior College Council of Teachers of Mathematics, 1973. (ERIC Document Reproduction Service No. ED 091 232)

In a modularized, self-paced course in college algebra, there was a slight increase in success rate of modularized over unmodularized. (undergraduate)

Penner, H. D. An analysis of using an individual progress approach to the teaching of trigonometry in the Omaha, Nebraska, publich high schools (Doctoral dissertation, The University of Nebraska, 1972). Dissertation Abstracts International, 1972, 33, 1421A. (University Microfilm No. 72-27, 419)

No significant difference in achievement was found between students using an individual progress or a traditional approach. (grade 11)

Phillips, C. A. A study of the effect of computer assistance upon the achievement of students utilizing a curriculum based on individually prescribed instruction mathematics (Doctoral dissertation, Temple University, 1973). Dissertation Abstracts International, 1974, 34, 3710A. (University Microfilm No. 73-23, 374)

No significant differences in achievement were found for students using the CAI or regular version of IPI. (grades 5, 6)

Pigford, V. D. A comparison of an individual laboratory method with a group teacher-demonstration method in teaching measurement and estimation in metric units to preservice elementary teachers (Doctoral dissertation, The Florida State University, 1974). Dissertation Abstracts International, 1975, 35, 4306A-4307A. (University Microfilm No. 75-941)

The teacher-demonstration method was just as effective as the activities-based method in both immediate and residual learning and more economical in

both teacher time and operational costs. (elementary preservice)

Project SKILL (skill development through individual learning levels) Final report, 1969-1972. Tacoma, Wash.: Franklin Pierce School District, 1972. (ERIC Document Reproduction Service No. ED 082 973)

Greater progress in achievement was shown by the experimental students than by students at three similar schools; no significant differences were found in attitude toward mathematics or toward school. (grades 5, 6)

Pusey, J. K. A comparison of the effects of three instructional procedures on achievement, self-esteem, and classroom adjustment of intermediate grade students in Title I schools (Doctoral dissertation, Oklahoma State University, 1973). Dissertation Abstracts International, 1974, 34, 6369A. (University Microfilm No. 74-8102)

Significant differences favored the individualized and the diagnostic programs over the regular program on mathematics concepts; no differences in problem solving were found. (intermediate)

Putbrese, L. M. An investigation into the effect of selected patterns of grouping upon arithmetic achievement (Doctoral dissertation, University of South Dakota, 1971). Dissertation Abstracts International, 1972, 32, 5113A. (University Microfilm No. 72-8388)

No significant differences were found among classes taught by whole-group,

multi-group, or individualized patterns. (grade 4)

Samph, T., & Campbell, P. Open education: students in transition. Elementary School Journal, 1974, 75, 37-41.

No significant differences in achievement were found between students who had or had not been in a laboratory school, open education program, but students in the program had lower mathematics marks. (grade 7)

Schaefer, W. A. The relationship of teaching methods to self-esteem and achievement in mathematics among seventh and eighth grade students (Doctoral dissertation, Northern Illinois University, 1972). Dissertation Abstracts International, 1972, 33, 624A. University Microfilm No. 72-22, 803)

Self-esteem did not appear to be affected by the individualized or traditional approaches used. In grade 7, one class taught traditionally achieved significantly better. (grades 7, 8)

Schoen, H. L. & Todd, R. M. Teacher prepared learning packages: aid to student? or teacher? Research reporting sections National Council of Teachers of Mathematics 52nd annual meeting (April 1974): 116-121.

No significant difference in achievement was found between groups using learning packages compared to TI and between classes taught by teachers who had prepared the packages and the classes taught by other teachers. (grades 9 - 10).

Sherry, M. A. Individualized contrasted with traditional instruction in sixth grade arithmetic classes (Doctoral dissertation, University of Southern California, 1974). Dissertation Abstracts International, 1975, 35, 6010A-6011A. (University Microfilm No. 75-6445)

Neither Project Success nor the traditional program brought the group with an average IQ of 92 up to grade level whereas the traditional program brought the group with an average IQ of 90 above grade level. (grade 6)

Shumaker, J. E. A comparison of study habits, study attitudes, and academic achievement in mathematics in junior high school of students taught by individually prescribed instruction in elementary school (Doctoral dissertation, University of Pittsburgh, 1972). Dissertation Abstracts International, 1973, 33, 6657A. (University Microfilm No. 73-13, 176)

No significant differences in mathematics achievement, study habits, or study attitudes were found between students who had an IPI or a non-IPI program in elementary school. (grade 7)

Smith, G. E. The relationship of cognitive style and instructional treatment in the acquisition of strategies for teaching elementary mathematics (Doctoral dissertation, The University of Texas at Austin, 1972). Dissertation Abstracts International, 1973, 33, 3470A. (University Microfilm No. 73-520)

No differences were found between students taught by teacher demonstration or with a self-paced module. Flexibility of closure was not useful as a

predictor of achievement. (elementary preservice)

Smith, J. E. The effect on achievement and attitude of three approaches for developing area concepts (Doctoral dissertation, The University of Texas at Austin, 1973). Dissertation Abstracts International, 1974, 34, 5497A-5498A. (University Microfilm No. 74-5328)

The expository approach was found to be superior to the unimodal and multimodal approaches on most topics studied. (grade 7)

Snyder, H. D. A comparative study of two self-selection-pacing approaches to individualizing instruction in junior high school mathematics (Doctoral dissertation, The University of Michigan, 1966). Dissertation Abstracts, 1967, 28, 159A. (University Microfilm No. 67-8346)

There was no significant difference in achievement between the group in which the students selected their own topics from a wide variety of sources and the group which had the content set by the teacher but had three levels of assignments from which to choose. (grades 7, 8)

Stone, Jr., J. L. The effect of individualized learning activity packages in mathematics on the academic achievement of seventh- and eighth-grade students in the Demopolis city schools (Doctoral dissertation, The University of Alabama, 1974). Dissertation Abstracts International, 1975, 36, 690A. (University Microfilm No. 75-18, 305)

Seventh graders experienced greater academic growth in the L[illegible] approach while the eighth graders experienced greater growth in the traditional approach, but neither difference was significant. (grades 7, 8)

Sutton, J. T. Individualizing junior high school mathematics instruction: an experimental study. Final Report of Project No. 1365. Contract No. OE 2-10-083, 1967. (ERIC Document Reproduction Service No. ED 016 609)

Significant differences found were in favor of the control group. The poor showing by the experimental students was attributed in part to the heavy demands placed on the teachers by the manipulation of the experimental materials. (grade 7)

Tack, R. R. The effectiveness of the Westinghouse Learning Center program involving a performance contract on reading and mathematics achievement of educationally deprived children (Doctoral dissertation, Brigham Young University, 1971). Dissertation Abstracts International, 1972, 32, 4334A. (University Microfilm No. 72-5766)

No significant difference was found on mathematics subtests between groups using programmed materials developed for a performance contract or the regular textbook. (grades 2 - 4)

Taylor, D. B., & Fleming, M. Individually prescribed instruction program (mathematics). Disadvantaged pupil program fund number 97-19, 1971-72

Evaluation, 1972. Cleveland: Cleveland Public Schools Division of Research and Development, 1972. (ERIC Document Reproduction Service No. ED 077 700)

In a 3-year study, it was found that in most cases students using IPI fell progressively further below the grade level norms. (grades 1 - 6)

Taylor, L. M. Independent study versus presentation by lecture and discussion: a comparative study of attitude and achievement in two algebra I classes (Doctoral dissertation, University of Northern Colorado, 1971). Dissertation Abstracts International, 1972, 32, 3877A. (University Microfilm No. 72-3307)

A lecture-discussion class did not achieve significantly more than an independent-study class. (grade 9)

Thomas, B. B. An evaluation of individually prescribed instruction (IPI) mathematics in grades five and six of the Urbana schools (Doctoral dissertation, Illinois State University, 1972). Dissertation Abstracts International, 1972, 33, 1335A. (University Microfilm No. 72-25, 708)

The IPI method did not produce significant achievement gains over the conventional method. In grade 6, attitude was more favorable toward IPI. (grades 5, 6)

Thomas, B. G. Continuous progress advanced algebra in the Lincoln public

International, 1972, 32, 6113A-6114A. (University Microfilm No. 72-15, 019)

Achievement and attitude were not significantly different in continuous progress or traditional algebra II classes. (grade 11)

Tychsen, A. B. An experimental comparison of teacher-paced instruction and student-paced instruction in the teaching of mathematics in the public elementary schools in Greenwich, Connecticut (Doctoral dissertation, The University of Connecticut, 1971). Dissertation Abstracts International, 1971, 32, 2382A-2383A. (University Microfilm No. 71-29, 921)

No significant differences in achievement between groups using individualized materials and groups taught by the teacher were found. (grade 1 - 6)

Verheul, G. W. A comparison of the effects of individually prescribed instruction and conventional textbook instruction on mathematics learning of selected sixth grade students (Doctoral dissertation, The Florida State University, 1971). Dissertation Abstracts International, 1972, 32, 4853A-4854A. (University Microfilm No. 72-10, 052)

Pupils having conventional textbook instruction achieved higher than those using IPI. (grade 6)

Walters, A. J. A comparison of pupil achievement and college success in two high school programs: one modular and one traditional (Doctoral dissertation, Duke University, 1972). Dissertation Abstracts International, 1973, 33, 4771A. (University Microfilm No. 73-6604)

No significant differences in mathematics were found between students having modular or traditional scheduling. (grades 10, 12, undergraduate)

Wasden, F. D. A comparative analysis of the difference in achievement between students educated in traditional and individualized schools (Doctoral dissertation, Brigham Young University, 1971). Dissertation Abstracts International, 1971, 32, 1247A. (University Microfilm No. 71-24, 270)

In general, students in traditional schools scored higher on tests of arithmetic skills than did students in individualized schools. (elementary)

Waters, G. H. The effects of an individualized laboratory appraoch on the teaching of mathematics to third grade students achieving below grade level (Doctoral dissertation, Virginia Polytechnic Institute and State University, 1974). Dissertation Abstracts International, 1975, 35, 7629A. (University Microfilm No. 75-11, 952)

Individualized instruction in the mathematics laboratory significantly improved general mathematics achievement in concept development and problem solving and mastery of specified mathematical skills, but did not significantly improve computation skills. (grade 3)

Wheaton, W. D. An evaluation of an individualized learning program in a California Union high school district (Doctoral dissertation, University of Southern California, 1971). Dissertation Abstracts International, 1972, 32, 5540A-5541A. (University Microfilm No. 72-11, 966)

Students taught by individualized methods did not differ significantly in mathematics achievement from those taught by traditional methods, but the latter gained significantly more in arithmetic applications. (secondary)

Whipple, R. M. A statistical comparison of the effectiveness of teaching metric geometry by the laboratory and individualized instruction approaches (Doctoral dissertation, Northwestern University, 1972). Dissertation Abstracts International, 1972, 33, 2699A. (University Microfilm No. 72-32 611)

Students who used a laboratory approach with manipulative materials scored higher than students using individualized instruction units. (grade 8)

Williams, B. G. An evaluation of a continuous progress plan in reading and mathematics on the achievement and attitude of fourth, fifth, and sixth grade pupils (Doctoral dissertation, Lehigh University, 1973). Dissertation Abstracts International, 1974, 34, 7115A-7116A. (University Microfilm No. 74-11, 359)

The continuous progress group achieved significantly better in mathematics than the graded group. (grades 4 - 6)

Wilson, P. M. Do students learn from and like an audio-tutorial course in freshman mathematics? The Two-Year College Mathematics Journal, 1972, 3(2), 37-41.

Students using audio tapes in self-pacing had better attitudes than students in traditional classes. (undergraduate)

Wood, S. W. A study of selected student, instructional, and achievement variables within a program of indivually prescribed instruction in mathematics for junior high educable retardates (Doctoral dissertation, University of Oregon, 1973). Dissertation Abstracts International, 1973, 33, 6760A-6761A. (University Microfilm No. 73-13, 782)

No achievement differences were found between IPI and non-IPI groups of EMR's on norm-referenced tests; differences favored the IPI group on 4 of 12 criterion-referenced tests. (grades 7 - 9, EMR's)

Wright, R. J. The affective and congitive consequences of an open education elementary school. American Educational Research Journal, 1975, 12, 449-465.

Differences in achievement favoring the children in the traditional school were found but there were no differences with respect to measures of personality or cognition. (grade 5)

Yomtoob, Y. A study of the effect of an individualized instructional program

on attitude, self-concepts and arithmetic achievement (Doctoral dissertation, The University of Toledo, 1974). Dissertation Abstracts International, 1975, 35, 4145A. (University Microfilm No. 74-29, 750)

The modified IGE program was not found to be superior to traditional instruction as regards achievement, attitudes, or self-concepts (grades 4, 5)

Analysis of Program Components

Bledsoe, J. C., Purser, J. D., & Frantz, Jr., N. R. Effects of manipulative activities on arithmetic achievement and retention. Psychological Reports, 1974, 35, 247-252.

The use of learning packages on fractions and decimals with manipulative materials produced greater gain on posttests and retention tests than packages with only paper-and-pencil exercises. (grade 7)

Bowen, R. L. An evaluative study of an individualized math team program (Doctoral dissertation, University of Southern California, 1974). Dissertation Abstracts International, 1974, 34, 6349A. (University Microfilm No. 74-9056)

No significant differences in achievement or attitude were found between groups using an individualized-team or conventional program. (grade 7)

Chatterley, L. J. Self-pacing with constraints--a modular approach to the teaching of precalculus mathematics. The Mathematics Teacher, 1975, 68, 678-682.

The modular approach shows promise for providing a program superior to the conventional classroom instruction program. (undergraduate)

Colvin, D. Improved learning practices through diagnosis of individual pupil needs, prescription and implementation for fulfilling those needs. (COLAMDA project.) Denver: Regional Center for Pre-Coll. Mathematics, 1973. (ERIC Document Reproduction Service No. ED 086 743)

The Committee of Low Achievers in Mathematics, Denver Area (COLAMDA) made use of the mathematics laboratory and individualized instruction in small groups. (grades 7 - 12)

Crawley, N. S., & Evans, D. Reading, mathematics, and self-concept: a three-pronged thrust by a small school: Goldsmith Elementary School, 1972-1973, Research and devleopment report, vol. 7, no. 37, 1974. Atlanta: Atlanta Public Schools, 1974. (ERIC Document Reproduction Service No. ED 094 038)

On the Iowa Test of Basic Skills, only two grades out of six attained the level set as a goal. (grades 2 - 7)

Dahlke, R. M. Determining the best predictors of success and of time of completion or dropout in an individualized course in arithmetic at a community

college. Journal for Research in Mathematics Education, 1974, 5, 213-223.

The best predictors for all three criteria were reasons for enrolling and prior achievement in mathematics. (undergraduate)

Dahlke, R. M. Studying the individual in an individualized course in arithmetic at a community college: a report on four case studies. The Mathematics Teacher, 1975, 68, 181-188.

Individualized courses in community colleges are not meeting the needs of adults who never grasped the fundamentals of arithmetic. (undergraduate)

DeRenzis, J. J. An investigation into the attitude patterns and their relationship to prescription writing procedures of teachers using the IPI instructional system in elementary mathematics (Doctoral dissertation, Temple University, 1970). Dissertation Abstracts International, 1971, 31, 6398A. (University Microfilm No. 71-10, 811)

Characteristics of teachers who are more successful at writing prescriptions were identified. (elementary inservice)

Edmunds, J. Individually prescribed instruction. Orbit, 1971, 2(3), 10-13.

A description of IPI is given including some information on costs. (elementary)

Erlwanger, S. The observation interview method and some case studies. Proceedings of the Conference on Future of Mathematical Education. Tallahassee, Fla: Florida State University, 1975, 125-142.

The case studies involve two sixth-grade students who had been in IPI since second grade and were at the top of the class. (grade 6)

Finch, J. M. Teaching-learning units in PLAN: an analysis of the utilization of instructional materials to individualize learning by computer-managed instruction (Doctoral dissertation, The University of Iowa, 1972). Dissertation Abstracts International, 1972, 33, 1354A. (University Microfilm No. 72-26, 675)

The text-only and objective-equipment categories were used most often, accounting for 64 percent of the assignments of pupils. (grades 4, 5)

Flanagan, J. C. Individualizing education. Education, 1970, 90, 191-206.

A description of Program for Learning in Accordance with Needs (PLAN) is given. (elementary)

Frary, R. B. Formative evaluation of the individualized mathematics system (IM . Durham, N.C.: National Laboratory of Higher Education, 1971.

A report of the 1970-71 evaluation of Individualized Mathematics System (IMS) is given. (grades 1 - 6)

Gilbert, R. K. A comparison of three instructional approaches using manipulative devices in third grade mathematics (Doctoral dissertation, University of Minnesota, 1974). Dissertation Abstracts International, 1975, 35, 5189A. (University Microfilm No. 75-2099)

In one of the two schools, students who individually manipulated the instructional materials achieved significantly more than those who worked in groups and those who watched the teacher handle the materials; in the other school, achievement was lowest for the students who handled the instructional materials themselves. (grade 3)

Graeber, A. O. Diagnostic-test-based prescriptions in individually prescribed instruction in mathematics (Doctoral dissertation, Columbia University, 1974). Dissertation Abstracts International, 1974, 35, 264A. (University Microfilm No. 74-23, 519)

There was no significant difference in posttest performance between the diagnostic-test-based group and control groups. (grades 3 - 6)

Graham, W. A. Individualized teaching of fifth- and sixth-grade arithmetic. The Arithmetic Teacher, 1964, 11, 233-234.

The fifth graders, working alone or in small groups on skills according to their needs, scored 1.2 years higher on the May ITBS than on the November. (grades 5, 6)

Grittner, F. M. Individualized instruction: new myths and old realities. Wisconsin Journal of Public Instruction, 1971, Winter, 49-59.

Attempts at individualized instruction in the early part of this century are described. (all levels)

Hamby, K. D. A model for modifying individualized instruction (Doctoral dissertation, The University of Texas at Austin, 1971). Dissertation Abstracts International, 1972, 33, 142A. (University Microfilm No. 72-19, 597)

Scores for students using a modified IPI program were better than for students using the regular program. (grade 2)

Heiman, M. B. Individualized instruction in the classroom (Doctoral dissertation, The University of Michigan, 1970). Dissertation Abstracts International, 1971, 31, 3956A. (University Microfilm No. 71-4638)

Student performance rates increased more when teachers had feedback on pupils' success in an individualized instruction program. (elementary)

Holste, D. E. The effect of different prescriptions used by teachers in an IPI mathematics program (Doctoral dissertation, The University of Illinois at Urbana-Champaign, 1972). Dissertation Abstracts International, 1972, 33, 552A. (University Microfilm No. 72-19, 849)

The type of prescription affected achievement. (primary)

Jones, R. C. A diagnostic-manipulative instruction program for teaching addition and subtraction to six emotionally disturbed children: a case study approach (Doctoral dissertation, University of Oregon, 1971). Dissertation Abstracts International, 1972, 32, 5071A. (University Microfilm No. 72-8552)

Under the laboratory program, student attitudes improved, the rate of mastery was better than before and tasks were learned more rapidly. (emotionally disturbed ages 7-11)

Jones, W. L. Comparison of cognitive and affective change of ninth grade students in open-space and closed-space classes (Doctoral dissertation, Arizona State University, 1974). Dissertation Abstracts International, 1974, 35, 1961A. (University Microfilm No. 74-21, 534)

Students from closed-space elementary schools achieved more in both open- and closed-space ninth-grade mathematics programs than did students from open-space elementary schools. (grade 9)

Kulm, G. The effects of the two summative evaluation methods on achievement and attitudes in individualized seventh-grade mathematics. Lafayette, Ind.: Purdue University, 1973. (ERIC Document Reproduction Service No. ED 090 279)

No significant differences in achievement were found between those tested after each unit and those tested after each objective. (grade 7)

LaPlaca, N. A. A cost-effectiveness analysis of individual learning units in a junior high school basic mathematics program (Doctoral dissertation, University of the Pacific, 1973). Dissertation Abstracts International, 1974, 34, 3771A-3772A. (University Microfilm No. 73-32, 098)

The individualized units were not cost effective, although the use of them was more effective on some achievement measures. (grade 8)

Light, J. A., & Reynolds, L. J. Debugging product and testing errors. Viewpoints, 1972, 48(4), 45-78.

A rationale is given for procedures in formative evaluation of an individualized mathematics curriculm in an elementary classroom. (elementary)

Lindvall, C. M., & Light, J. A. The use of manipulative lessons in primary grade arithmetic in a program for individualized instruction. Paper presented at the AERA annual meeting, 1974. (ERIC Document Reproduction Service No. ED 090 038)

In a three-year study it was found that the manipulative materials of IM could be managed by the students on their own and that IM produced mastery rates and achievement scores equivalent to those produced by IPI. (grades K - 3)

Moncrief, M. H. A validation study of selected decision rules used in the management of student progress through an individualized mathematics system (Doctoral dissertation, The Florida State University, 1972). Dissertation Abstracts International, 1973, 33, 4247A. (University Microfilm No. 73-4695)

Actual criterion levels differed from levels indicated by the program developers. (elementary)

Neufeld, K. A. Differences in personality characteristics between groups having high and low mathematical achievement gain under individualized instruction (Doctoral dissertation, The University of Wisconsin, 1967). Dissertation Abstracts, 1968, 28, 4540A. (University Microfilm No. 67-16, 986)

The hypothesis that there was no significant difference in the personality characteristics among pupils of different levels of mathematical achievement gain was accepted for six personality variables and rejected for six others. (grades 4, 5, 6)

Neujahr, J. L. An analysis of teacher-pupil interactions when instruction is individualized (Doctoral dissertation, Columbia University, 1970). Dissertation Abstracts International, 1971, 31, 4041A. (University Microfilm No. 71-5593)

Analysis of lessons in mathematics, social studies, and science revealed that interaction patterns differ in individualized and lecture-discussion

classes. (grade 6)

Newman, F. L., Young, D. L., Ball, S. E., Smith, C. C., & Purtle, R. B. Initial attitude differences among successful, procrastinating, and 'withdrawn-from-course' students in a personalized system of statistics instruction. Journal for Research in Mathematics Education, 1974, 5, 105-113.

On an attitude test given before treatment, students who withdrew from the course exhibited low interest in doing mathematics problems while both those who withdrew and those who procrastinated showed feelings of anonymity in traditionally-taught mathematics courses. (undergraduate)

Oles, H. J. Assessment of student self-evaluation skills. Programmed Learning and Educational Technology, 1973, 10, 360-363.

Fifth-grade students often "cheated" when self-scoring by not marking the item wrong or by changing their answer without reworking the problem. (grade 5)

Osmundson, A. Individualized mathematics instruction through a system of continuous progress. The Mathematics Teacher, 1972, 65, 417-420.

In an individualized system using teacher-made learning packets, geometry students were unable to function alone, and lectures had to be added. (secondary)

Pond, Jr., T. F. Individualized instruction: a model for teacher preparation (Doctoral dissertation, The University of North Dakota, 1973). Dissertation Abstracts International, 1973, 34, 3220A. (University Microfilm No. 73-29, 630)

A program of individualized instruction for elementary education students had a positive effect on students' attitudes toward individualized instruction. (elementary preservice)

Rosner, J. Changes in first grade achievement and the predictive validity of IQ scores as a function of an adaptive instructional environment. Educational Technology, 1974, 14(1), 32-36.

Significant changes in arithmetic and language arts scores were noted during five years of individualizing the first grade program, including the use of materials on quantification, classification, and perceptual skills. (grade 1)

Schoen, H. L. A plan to combine individualized instruction with the lecture method. The Mathematics Teacher, 1974, 67, 647-651.

Use of modules for self-pacing in the problem session of a mathematics course for elementary teachers produced no significant differences in achievement. (elementary preservice)

Sowell, E. Elementary teachers learn to sequence mathematics instruction.

School Science and Mathematics, 1974, 74, 403-306.

Teachers who used the self-instructional materials achieved significantly higher scores on a test of ability to select and sequence prerequisite objectives than did teachers who did not use the materials. (elementary preservice and in-service)

Stiglmeier, L. M. Teachers' judgments of pupils' dependence/self-reliance characteristics mode of instruction and their relationship to achievement (Doctoral dissertation, State University of New York at Albany, 1972). Dissertation Abstracts International, 1973, 34, 1008A. (University Microfilm No. 73-19, 707)

No significant relationship was found between teachers' judgment of student needs and mode of instruction received by the student in an individually diagnosed and prescribed mathematics program, nor was there any significant difference in achievement of pupils who were matched or mismatched in terms of judged personality with instructional mode. (grade 8)

Wang, M. C., & Lindvall, C. M. An exploratory investigation of the Carroll learning model and the Bloom strategy for mastery learning. Pittsburgh: Learning Research and Development Center, 1970. (ERIC Document Reproduction Service No. ED 054 983.

No significant correlation between aptitude and rate of learning was demonstrated when data from students using IPI were used. (grades 2 - 6)

Wang, M. C., Resnick, L. B., & Schuetz, P. R. PEP in the Frick Elementary School: interim evaluation report 1969-1970. Pittsburgh: Learning Research and Development Center, 1974. (ERIC Document Reproduction Service No. ED 101 859)

PEP seemed to show promise in helping to overcome the "cumulative deficit" in mathematics and reading achievement often found in culturally- and economically-deprived children. (pre-school, grade 1)

Werner, M. Computer-assisted planning and scheduling of individualized programs of study in science and mathematics at the secondary level. The Journal of Educational Research, 1970, 64, 127-132.

The potential of a systems approach for planning and scheduling an individualized secondary mathematics and science program was explored. (secondary)

Wolff, B. R. An analysis and comparison of individualized instructional practices in arithmetic in graded and nongraded elementary classrooms in selected Oregon school districts (Doctoral dissertation, University of Oregon, 1968). Dissertation Abstracts, 1969, 29, 4397A. (University Microfilm No. 69-6673)

No differences were found in teachers' concepts of individualization, how individualization was done, and students' test score variability when nongraded schools were compared to graded schools. (grade 3)